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METHODS USED IN COMPUTING RAIL FREIGHT-RATE INDEXES FOR FARM PRODUCTS

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A basic agricultural policy of long standing calls for the development and maintenance of an adequate transportation service for farm products, a service that will permit the lowest rates equitable to producers, ultimate consumers, and carriers alike. The transportation pattern is complex and the rate structure that was evolved is composed of many balances among the parties involved. These interrelationships continually change and require constant evaluation.

The rail freight-rate index series for agricultural commodities were developed as an elementary analytical tool for studying the behavior patterns of rail freight-rates. These index series have effectively measured changes in freight rates for rail movements of important farm commodities since 1913. In view of the marked increase in motortruck transportation of farm products in recent years, an index series for truck

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1/ Mildred R. DeWolfe and others gave statistical assistance. This study was made under authority of the Agricultural Marketing Act of 1946 (RMA Title II).

rates would be desirable. However, most truck hauling of farm products is by unregulated or exempt carriers and development of indexes must await collection of basic data on hauling charges.

The Bureau of Agricultural Economics index series for wheat, cotton, livestock and meats, fresh fruits and vegetables, and the combined index for farm products are shown in table 1. The basic indexes for livestock, meats, and fresh fruits and vegetables are developed from indexes for many individual products. These subindexes, for the years since 1945, are listed in table 2.

In addition to showing the trends in average rail freight rates for these products, the general framework of the indexes contains many freight-rate histories for shipments between specific points. Also, comparisons of rates between competing production areas and markets, and other useful information for individual transportation studies may be obtained from the working material for the indexes. Thus, the utility of the freight-rate index mechanism extends beyond its direct use in measuring the impact and relative importance of changes in freight-rates upon the various farm products.

In the period covered by the rail freight-rate indexes revolutionary changes have occurred in competition among carriers, geographic traffic patterns, and in the rate structure. To keep pace with these changes, the methods for computing rail freight-rate indexes have been revised. As a result, the index-number series, in total, represent the work of many researchers and reports on such are scattered in a variety of publications, some of which are out of print.

The index-number series for wheat, cotton, and fresh fruits and vegetables have been revised currently on a basis that is representative of post-World War II rail-traffic conditions. These series, together with the revision of the livestock and meat indexes, completed in 1951, now place the entire series published by the Bureau of Agricultural Economics upon a comparable postwar base.

This publication is intended to describe the current methods of making rail freight-rate indexes and to give transportation researchers and agricultural economists the information necessary to evaluate the utility of these tools in regard to particular problems or studies. In addition to the Bureau of Agricultural Economics index series, an analysis of the average rail freight-rate indexes of the Interstate Commerce Commission is included, in order that the methods used, and the measure of comparability and variations between the two series may be shown.

SUMMARY

The Bureau of Agricultural Economics publishes annual rail freight-rate index numbers for wheat, cotton, fresh fruits and vegetables, livestock and meats, and a combined index for farm commodities. Except for the meat index, which began in 1940, these series cover the period since 1913. The Interstate Commerce Commission publishes rail freight-rate index series for various rail-freight classes, beginning in 1947.

BAE and ICC index numbers both measure yearly average rate levels. However, midyear rate changes are measured only to the extent that traffic was shipped under such rates. The remainder of the effect is recorded in the following year's index number. This time lag limits the use of index numbers in measuring rate levels in effect on a specific date. Thus, the Interstate Commerce Commission, from time to time, reports estimated changes in rate levels resulting from general freight rate changes authorized by the Commission.

The BAE and ICC indexes serve the purposes for which each was intended, and each may be applied most effectively to certain types of analysis. Agriculture requires series which cover major commodities and provide information as to changes in competitive position of production areas. The ICC indexes are developed by rail-freight classes which in some cases are not comparable with commodity classifications. Cattle and calves, for example, are divided between two classes depending upon whether shipment was made in single deck or double deck cars. Thus, the ICC indexes provide a comparison of rate behavior between freight classes for farm and nonfarm commodities and manufactured products. The ICC indexes are developed from data obtained from the 1-percent rail-freight waybill sample collected by that agency.

The BAE rail-freight index series are of the weighted aggregative type, measuring changes in average rates charged during the year for lowest cost transportation available to shippers, assuming a normal seasonal distribution of shipments. They are based upon a representative traffic sample of origin-destination couplets which are weighted for volumes moving between these and similar points.

Rail traffic patterns for farm commodities have changed considerably since 1913, and traffic samples and weights are changed periodically to maintain representativeness. Index series comparable to later periods are linked to earlier portions of the indexes in order properly to represent each time period.

Revision of the index series for wheat, cotton, fresh fruits, and vegetables have been completed recently. These changes, together with the indexes for livestock and meats which were revised in 1951, now base all BAE postwar index numbers upon postwar traffic conditions. Also, all index numbers since 1945 are now reported on a calendar-year basis. This conversion from crop to calendar years was made to provide comparability with the transportation bill, indexes of prices received by farmers, and other series published by the Bureau of Agricultural Economics.

The rail freight-rate indexes published by BAE have provided an effective measure of changing rail freight-rate levels for almost 30 years. Extension of the indexes to cover truck hauling of farm products would provide valuable information, as trucks are hauling an increased share of this freight. But truckers of nonprocessed farm commodities are exempt from regulation by the Interstate Commerce Commission and adequate information on rates or traffic pattern is not now available to serve as a basis for computing freight rate indexes for truck traffic.

RAIL FREIGHT-RATE INDEXES

The rail freight-rate indexes published by the Bureau of Agricultural Economics include those for wheat, cotton, fresh fruits and vegetables, livestock, meats, and a combined index for farm products. The respective indexes are shown in table 1.

General Formulation

The rail freight-rate indexes are of the weighted aggregative type, bearing the following formula:

$$I_n \quad \frac{\Sigma ar_n w_o}{\Sigma ar_o w_o}$$

Where: I_n = Index number for years 1, 2, ...n
ar_n = Annual average freight rate for years 1, 2, ...n
ar_o = Annual average freight rate for base period (1947-49 average)
w_o = Weights for base period

The annual average freight rate (ar) in the above computation is developed from the formula,

$$ar = \Sigma r_n v_n$$

Where: r_n = Rates 1, 2, ...n effective within the year
v_n = Estimated volume moving under rates 1, 2, ...n, respectively.

The elements involved in the index computation are the (1) base period, (2) selection of traffic sample, (3) assignment of weights to each movement in traffic sample, (4) selection of representative type rates, and (5) measure of seasonality in annual shipment pattern.

Base Periods

The base period currently used in computing all Bureau of Agricultural Economics rail freight-rate index series is the 3-year average 1947-49, as prescribed by a Bureau of the Budget directive. The base period for the indexes is changed from time to time to maintain an up-to-date measure.

Weights for the various index series are all representative of the 1947-49 period. Variation into 1-, 2-, and 3-year averages for such weights have been caused by differences in the time period necessary to obtain a representative traffic-flow pattern. In certain fresh fruits and vegetables, crop conditions and resulting variations in total crop production require a 3-year average in order to obtain a "normal" picture. But in wheat, a single normal production year may provide adequate data for construction of the weighted traffic sample.

Traffic Sample and Representative Rates

The index series are based upon a sample of freight movements, from points of origin to points of destination which are representative of the overall pattern of rail freight traffic for each commodity. Weights applied to the individual movements are representative of the actual volumes moving between the points, or for those with similar rate-based traffic.

In each movement, carlot rates bearing the highest minimum weight requirements are used. These minimum weights may vary over time and between railroad territories; however, the rates used were measured by the requirement that each represent the lowest carlot rate obtainable for normal shipment. As these rates were used throughout the entire period of each series, comparability was maintained.

Seasonality of Traffic Flow

In computing the annual average freight rate used in developing the index numbers, the seasonality of traffic flow must be measured. Several rates may be effective within the year, and the quantities of the product moving under each rate will vary. The annual average freight rate is thus an estimate of the average actual costs of transportation paid by shippers during the year. 2/

The use of the annual average freight-rate mechanism may cause a time lag of several months in measuring actual changes in freight rates. Changes may be registered in the index numbers for years in which no change in freight rates occurred. An example of such a case occurs when shipments of a seasonal crop may have been completed before the effective date of the new rate, and no shipments are made under this rate during the rest of the year. Thus, the entire effect of the change in freight rates is measured in the following year's index number. Occasionally, such situations are responsible for complications that may arise in comparing data on freight rates obtained from the indexes and from other sources.

2/ Excluding the 3-percent Federal transportation tax and charges for protective services.

Time Changes within Index Series

As shown in Agricultural Statistics, 1952, the rail freight-rate index series are based on the crop year beginning July 1. With the current revision, however, index numbers beginning in 1945 are based on the calendar year. Earlier series retain the crop-year basis.

The changeover from crop year to calendar year, beginning in 1945, was made to place the freight-rate indexes on a comparable basis with the Transportation Bill, Marketing Bill, and Indexes of Prices Received by Farmers, published by the Bureau of Agricultural Economics. The series prior to 1945 remain on a crop-year basis, because the value that would have resulted from changing earlier data would not warrant the time required for such a conversion.

The transfer to a calendar-year basis also results in a change in the base period for the index, to an average for the calendar-years 1947-49. With crop years, the former base period covered July 1947 to June 1950.

This backshift of 6 months in the base period has resulted in a slight change in the entire index-number series. As the period 1947 through 1950 contained rapid increases, the average rates in the new base period are lower than those on the crop-year basis, and the level of the entire index-number series is increased somewhat.

Linkage of Index Series

Within individual index series, computations representative of later periods are linked to others typical of earlier periods. The significant changes in rail traffic during the postwar years warranted the linkage of these separate series, rather than the creation, either of a compromise computation, which would be only partially representative of either period, or the extension of one index base adequate for either single period to cover the entire period of time involved.

The extent of differences between pre-World War II and postwar conditions of traffic and rates varies among agricultural commodities. Rail traffic changes for fresh fruits and vegetables and livestock have been greater than have those for wheat and cotton. However, in each case, sufficient evolution has occurred to warrant the use of the linkage mechanism.

The optimum linkage point, under normal conditions, is approximately midway between the dates for which the volume weights have been developed, or the changing base periods of the index. But with rapid changes in certain periods, and stability in others, the particular situation under study will determine the optimum linkage point to be established. The calendar-year 1945 was chosen generally as a linkage point for these

series, 3/ as it segregates the dynamic postwar transportation period from the prewar period and the "controlled" wartime situation.

INDEX OF RAIL FREIGHT RATES FOR WHEAT

The wheat index covers the period 1913 to the present. But the years from 1913 to 1945 are based upon the "original" index, and the period beginning in 1945 is developed from the "revised" index, with 1945 providing the linkage period. The variations between the original and revised indexes are as follows:

(1) Choice of rail traffic sample and weights for individual shipments; and
(2) The measurement of seasonal traffic flow.

The Original Index for Wheat

The original index was developed from a sample of 20 points of origin and destination selected as representative of the principal shipping areas, and their respective terminal markets. 4/ From this sample, the index numbers developed are essentially a measure of rail freight rates for movements from country shipping points to the terminal markets. Prices paid to producers of wheat at country points are based, generally, upon the current price of wheat at the terminal market, less the cost of transportation to that market and sundry handling and storage charges. Thus a measure of this type of transportation cost for wheat is of significance to producers of wheat.

The traffic sample in the original index is divided into three regional categories, covering the major production areas for winter, spring, and western wheat.

In computing the overall index for wheat, the individual origin-destination couplets are segregated into three categories -- winter, spring, and western. The average freight rate for each category is weighted by 5, 2, and 1, for winter, spring, and western wheat, respectively, in accordance with relative volumes of wheat shipped. The resulting weighted average rate becomes the basis for the index number for all wheat.

In computing the annual average freight rate for wheat, in the original index, the percentage of the total quantity shipped under each rate is estimated as proportionate to the number of days that each rate remained in effect during the year.

3/ The livestock index uses 1940 as the linkage year.

4/ Indexes for wheat and cotton are described by Donald E. Church and George T. Reeves, in the Marketing and Transportation Situation, BAE, March 1949.

Revised Index Series for Wheat

The revised index is based upon a sample of 86 point-to-point movements, as listed in table 3. This sample extends coverage to additional production areas and maintains it for the regions included in the original index sample. In addition to the country-point to terminal-market shipments, subseries was developed for movements outbound from terminal markets to domestic mills and ports of export. Thus, the traffic sample is representative of a broader base of the total rail traffic in wheat than was the case in the original index.

The weights assigned to each point-to-point movement were based upon the rail-traffic pattern for wheat during the calendar-year 1949. Each wheat-producing State was weighted in accordance with the estimated quantity of wheat sold by farmers. The weights for each State were then divided among representative shipments to the various appurtenant markets, ports of export, and domestic mill centers.

There is no single measure of the traffic flow of wheat. The nature of the wheat industry, and the rail rate structure are sufficiently complex to require an evaluation of all available data on flow and usage in order that reasonable assumptions may be made.

The best single source of traffic data is contained in the Interstate Commerce Commission's 1-percent Waybill Sample series. However, this source is complicated by the intransit privilege. Each shipment of wheat, whether from its origin or outbound from transit points, is regarded as a separate movement, and as such is indistinguishable within the sample. Thus, the waybill sample does not provide a full measure of the origin and ultimate destinations of shipments of wheat.

Technically, it was suggested that matching transit movements within the 1-percent waybill sample to the waybill under which the original shipment was made would give the through movement from origin to destination. But wheat moving into a transit point is commingled and loses identity. The origin of the wheat shipped out may differ from that of the wheat arriving at the transit point under the original waybill. Differences in the characteristics of flour made from the different varieties of wheat are important factors in the establishment of the flow pattern. Therefore, a reconstruction of origins of transited wheat might serve as a mask that would cover the true pattern of movement.

As a measure of the total flow pattern for wheat cannot be obtained from a single source, a tentative balance sheet of interstate movements and usage, of wheat including storage, was prepared. Although certain basic data were not available, such as (1) the ports of export used for wheat destined for shipment abroad under military and military aid programs, and (2) truck movements, a measure of the overall flow pattern was ascertained. From this pattern, the ICC Waybill Sample, testimony offered before the Interstate Commerce Commission, and other sources, the weights for the wheat-shipment sample were established.

More than 85 percent of the sample weights are concerned with the so-called "primary" movements from country points to terminal-market areas, and less than 15 percent are related to movements outbound from terminal markets. Most rail movements of wheat are from production points to terminal-market areas. Further shipments outbound as wheat are smaller because of both conversion of wheat into flour and millfeeds at these points and the quantity diverted to other transportation. Shipments by water include ocean vessels into export, lake vessels, and river barges. Limited data are available for trucking from these points.

The "secondary" movements are of value in pointing out the rate pattern for movements outbound from terminal-market areas. Also, as flour travels at comparable rates, they indicate the relative status of rates for flour between the points contained in the sample.

Development of these primary and secondary movements within the sample helps researchers to cope with the problem of transit-balance rates. Primary movements customarily are made under higher cost "local" or "flat" rates, and secondary movements under lower cost "proportional" rates. Transit balances exist within the framework of a through rate, and they are "washed out" when the through rate is used.

Local and proportional rates operate concurrently between most important points for shipments outbound from major terminal-market areas. The right to use the lower proportional rate usually depends upon whether or not the shipment originated at a point beyond the terminal market and was routed through the terminal market by rail. For such traffic, which is entitled to the proportional rate outbound, the freight billing from origin to ultimate destination is based upon the total of (1) the local rate from country shipping point to terminal market, and (2) the proportional rate outbound to the ultimate destination. As this break in rates occurs at the terminal market, the segregation into primary and secondary movements is warranted. The actual origin of wheat moving under the proportional rate is unknown. In obtaining an average of freight-rate changes, the origin is immaterial for movements beyond the terminal market

The revised index also changes the measure of seasonal wheat traffic flow. Study indicates that the average seasonal flow of wheat is made up of two different movements. Shipping from country points to initial storage or market areas follows the harvest pattern; whereas movements outbound from markets and storage points are more even throughout the year. The quarterly average of the tonnage of wheat moved by rail from 1947 through 1951 was as follows:

Quarter	Percentage of total wheat tonnage shipped by rail
1st	20
2nd	21
3rd	37
4th	22
Total	100

The annual average freight rate for wheat in the revised index is computed from this quarterly shipment tabulation. The quantity moving under each effective rate is estimated as proportional to the number of days in each quarter that the rate was in effect.

The rail freight-rate structure and the traffic flow of wheat are complex mechanisms. They are not subject to measurement with the degree of certainty that is obtainable with some other farm products. But with the expansion of coverage and the development of more accurate weights both as to quantities and seasonality of movement, the revised index method provides a more accurate measure of changes in freight rates for wheat.

In addition to providing an index series, the subsidiary data used in developing the index provide rate histories that are useful in analyzing changes in individual rates and also in the development of other transportation studies.

THE RAIL FREIGHT RATE INDEX FOR COTTON

The rail freight-rate index for cotton is of the weighted aggregative type; it uses the same general method as that applied for the wheat index series. The cotton index also covers the period 1913 to the present time, with the years 1913 to 1945 based upon the original index, and the later period upon the revised index. The year 1945 provides the linkage period between the two index series. The original and the revised indexes vary in the traffic sample chosen, and in the weights applied to each movement within the sample. Each is a measure for cotton in bales.

Seasonality of the movement of cotton is hard to determine, as is that of wheat. Both have in transit privileges, and storage is involved. Several years and a number of shipments may be involved in the movement of a given lot of cotton from origin to ultimate destination. Therefore, without a closer measure of seasonality available, the quantity estimated to move under any given rate during the year is considered proportional to the number of days that each rate was in effect. This method is applied to both index series.

The Original Index for Baled Cotton

The original index, which covers the years 1913-45, is based upon a sample of 40 point-to-point rail movements. The annual average freight rate is obtained for each movement, and the arithmetic average of these 40 annual average freight rates becomes the basis of the index-number computation for cotton. By this method, it is evident that each rate bears an equal weight in determining the index number.

Analysis of the traffic sample indicates that selection of the sample was based upon the following assumptions:

(1) Forty percent of the cotton shipped by rail was produced east of the Mississippi River, and 60 percent west of the Mississippi, with no shipments originating west of Lubbock, Tex.

(2) Fifty percent of the cotton shipped was destined for export.

(3) Of the 50 percent of cotton destined to domestic mills, about two-thirds was shipped to southeastern mills, and one-third to northern mill points.

The Revised Index for Cotton

Revision of the cotton index was concerned primarily with the development of a new traffic sample and with weights that would be representative of the changed rail-traffic pattern. A study of this pattern for 1948-49 indicates the following traffic structure:

(1) Cotton production east and west of the Mississippi River remains at the same approximate ratio of 40:60, respectively. However, estimated total rail shipments have changed to 33:66. Approximately 18 percent of all rail shipments of cotton originated in the irrigated cotton areas of California, Arizona, and New Mexico.

(2) About 30 percent of the cotton went into export markets, but the proportion of export cotton originating west of the Mississippi is larger than that estimated in the original index.

(3) More than 90 percent of all export cotton is now shipped through Texas, Louisiana, and California ports. The quantity handled by southeastern ports and the relative importance of these ports has dwindled.

(4) Of the cotton moving into domestic consumption, an estimated 85 percent was consumed in southeastern mills, 10 percent in northeastern mills, and 5 percent in mills scattered over the remainder of the country.

The traffic sample and the weights for the movements are shown in table 4. The movements and weights contained in the sample measure within a range of about 5 percent of the relative proportional movements into export between the major ports, and also the estimated division between southeastern, northern and other mill areas. The total weights applicable to export movements tend to be slightly overweighted relative to the proportion destined for domestic consumption. However, such indicated variation may not be totally a bias within the sample, as the sample measures only rail traffic. Increasing quantities of cotton hauled to mills by truck from southeastern producing areas may account for part of this seeming variance. As adequate truck-hauling data is not available, no measure can be obtained as to the relative importance of such movement.

Computation of weights for the cotton-traffic sample presents problems. As in wheat, the in transit privilege clouds the flow pattern shown in the ICC Waybill Sample. Likewise, movements outbound from the point of origin and from transit points are indistinguishable. In addition, it is known that truck shipments, particularly in the Southeast, are of increasing importance. An absence of a measure for such movements complicated the use of State production figures as the basis for commodity weights.

The index weights were developed from information contained in the waybill sample, after adjusting for the effect of transit in the sample. Cotton may be transited several times before it reaches its ultimate destination, and with each transit operation, the identity of the origin is lost, so far as transportation records are concerned. Thus, the establishment of origin and destination couplets, as well as the weights assigned to these movements required a framework of assumptions. These assumptions are as follows:

(1) Cotton shipped from any State to another State, not possessing important milling centers or ports of export, is indistinguishable from cotton ginned in the receiving State.

(2) Total cotton produced in the receiving State (above) and shipped outbound by rail is equal to the total outbound rail tonnage less total inbound rail tonnage from other States.

(3) The relative proportions of cotton moving outbound from such a State to other States shall be the same for cotton produced within the State and for cotton transited and reshipped out of the State.

(4) All out-of-State cotton arriving in a State with important milling facilities is assumed to be consumed within that State.

(5) All out-of-State cotton unloaded in Louisiana is considered destined for export.

(6) Far West irrigated cotton moving into Texas is assumed to be allocated three-fourths to export and one-fourth for reshipment to domestic markets.

In estimating quantities destined for export, the presence of intrastate shipments require additional assumptions:

(7) In Louisiana, the quantity of local cotton destined for export is estimated as equal to the total intrastate tonnage less the tonnage of local cotton moving out of the State by rail.

(8) In California, the total of estimated local cotton moving out of the State by rail plus half the quantity arriving from other States (estimated to be outbound in export) are subtracted from total intrastate tonnage. The rest is calculated as local cotton moving into export.

(9) In Texas, the total of estimated local cotton moving out of the State by rail plus half the out-of-State receipts of cotton destined for export, are subtracted from total intrastate tonnage. The rest is calculated as local cotton moving into export.

The fifth and sixth assumptions are based upon the fact that when out-of-State cotton arrives in New Orleans or southern Texas, it is often out of line, so far as transportation costs are concerned, for further shipment to domestic mills. Therefore, it is anticipated that such shipments would be handled most profitably through export. In Texas, the bulk of out-of-State receipts are from producing areas in the Far West, and approximately equal quantities of such cotton are handled by the Dallas and Houston markets. Dallas is generally in line for further shipments either to mills or to export points; whereas Houston is considered somewhat out-of-line for further domestic movements.

The last three assumptions are based upon the transit privilege. For example, in Texas, this assumes that each shipment of Texas cotton destined for interstate commerce will be shipped once intrastate and transited prior to interstate shipment; also that half of the out-of-State cotton bound into export will be transited within the State prior to an intrastate movement to the export point. The number of such shipments where no intrastate movement is involved are assumed to balance the number of Texas shipments into export where two or more intrastate movements occur.

These assumptions cannot be maintained fully from the data available. However, the sample constructed within this framework, as shown in table 5, fits within reasonable limits the overall pattern of consumption and exports.

RAIL FREIGHT-RATE INDEX FOR FRESH FRUITS AND VEGETABLES

The rail freight-rate index series for fresh fruits and vegetables is constructed in the same general way as the other Bureau of Agricultural Economics series. It covers 1913 to the present and is composed essentially of two index computations, linked in 1945. The method developed in the original index was carried over into the revised series with little change. However, the representative points of origin and destination contained in the traffic sample, and the individual weights applied were subject to considerable revision. This is of particular importance with fresh fruits and vegetables, as the postwar pattern of traffic shows marked differences from the prewar flow of traffic. Competition from trucks, technological developments in the processing of fruits and vegetables and variations in production among major producing areas have contributed to the changing rail-traffic pattern for these commodities. Some shorter haul producing areas which formerly contributed much rail traffic have "withered" as a source of rail tonnage. Generally, the longer haul shipments have achieved relatively greater importance.

The Original Index

The original index 5/ was developed from a traffic sample representative of the average traffic flow occurring in 1935-39. The sample contains 153 origin-to-destination movements, and covers 20 products.

Annual average freight rates are developed from an index of average monthly shipments for each product and the major production areas of each that are included in the sample. In computing the index numbers for fresh fruits and vegetables, their seasonal patterns of shipment must be measured more closely than those for wheat and cotton, as the seasons are limited and storage is a smaller consideration.

The Revised Index

The revised index consists of a traffic sample containing 215 representative point-to-point movements, as shown in table 6. This sample is based upon an average of shipments occurring in 1947-49. The 3-year period is considered a minimum necessary to obtain a "normal" average of shipments. If a shorter period were used, crop conditions within any one year could create an erroneous weighting.

Except for sweetpotatoes, the sample includes the same commodities as those covered in the original index series. Elimination of sweetpotatoes represents a reduction of less than 1 percent in the total volume of fresh fruits and vegetables. Insofar as data is lacking as to the ultimate destination of shipments of sweetpotatoes, it is believed that the bias which could result from the inclusion of unrepresentative points of origin and destination would probably be greater than any bias resulting from elimination. Also, so far as possible, the individual point-to-point movements contained in the original index were retained in the revised index.

The commodity weights shown in table 6 represent one-tenth of the average 1947-49 carlot shipments, as obtained from annual carlot-shipment summaries published by the Production and Marketing Administration. These weights for commodity and major production areas are then allocated to individual point-to-point movements, in ratio to movements shown in the Interstate Commerce Commission's 1-percent Waybill Sample. In certain lower volume fruits and vegetables, such as plums and fresh prunes, where flow data is not available within the Waybill Study, PMA unload data is used to estimate the relative importance of various destination points.

The ICC Waybill Analysis was used only to measure the relative importance of points of origin and destination because of the presence of large shipments of fresh fruits and vegetables which cannot be identified

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5/ Matlock, C. C., Index Numbers of Railroad Freight Rates on Perishable Agricultural Shipments, United States, 1913-38. Bur. Agr. Econ. 1941.

adequately. These items, fresh fruit, NOS (not otherwise specified), and fresh vegetables, NOS, include some smaller volume commodities not included in the index, and also some shipments of listed items which are not completely identified in the Waybill.

Costs for protective services such as refrigeration and heating are a significant part of the total costs for transporting fresh fruits and vegetables. However, they are not included in the index computation. The amount of protection required during the year and between different origin and destination points varies. Thus, the assignment of protective service charges would be arbitrary and comparability throughout the sample would be hard to maintain.

Table 7 is the revised monthly index of average carlot shipments for fresh fruits and vegetables, as based upon 1947-49 average shipments. This index is used in computing the annual average freight rates for the sample movements contained in the revised index. Because of changing varieties, storage programs, rail-truck freight patterns, and seasonality of demand for the various fresh fruits and vegetables, revision of the monthly average shipment index was undertaken.

Although the index developed for fresh fruits and vegetables is considered representative of the postwar period, review of the composition of this index should be undertaken periodically. A graphic example of the necessity for such review is found in the reduced shipments of Texas grapefruit since the major freeze of 1950. The postwar period shows trends toward reduction of the total volume moved by rail and an increase in the average length of haul in many of these commodities.

RAIL FREIGHT-RATE INDEX FOR LIVESTOCK AND MEATS

The program for revision of the BAE index numbers did not include any change in the index series for livestock and meats, except for the change-over from crop to calendar year, beginning in 1945. These series were revised and placed upon a postwar base in 1951. 6/

The Livestock Index

The livestock index is a continuous series since 1913 and consists of two index compilations which are linked in 1940. The meat index, however, covers only the period from 1940 and is a single index.

As the original livestock index covers only the years from 1913 to 1940 and as the current pattern is reflected fully in the revised index, discussion is limited to the latter. This index is based upon subindexes

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6/ Limmer, Ezekiel, Index Numbers of Railroad Freight Rates on Livestock and Meats, 1940-50. Bur. Agr. Econ. 1951.

for cattle and calves, hogs, and sheep. Index numbers for these subindex series are weighted by the total revenues received in 1948 by class I railroads for transportation of the respective types of livestock, in order to obtain the overall index number for livestock.

The subindex for cattle and calves is developed from a traffic sample of 30 representative points of origin and destination. This sample contains both "feeder" and "slaughter" rates, as freight-rate levels vary between these two customary types of shipment. The traffic sample for sheep consists of 27 movements, which are also divided into feeder and slaughter rates. The hog subindex is developed from a sample of 31 shipments which are based upon "single-deck" and "double-deck" rates, in accordance with average shipments by these two customary types of rail transport for hogs. Tables listing point-to-point movements used in computing the livestock and meat indexes are published by the Bureau of Agricultural Economics in "Index Numbers of Railroad Freight Rates on Livestock and Meats, 1940-50."

The traffic samples for each of these commodities were developed from the Interstate Commerce Commission's 1-percent Waybill Sample for the calendar-year 1948. The method used was first to assign weights to each railroad territory 7/, based upon the volume of traffic that originates within it. These weights were then distributed among the point-to-point movements chosen for the sample, in accordance with the estimated volume of traffic between such points or bearing a similar rate pattern. This second computation was based upon the State-to-State distribution pattern as shown in the Waybill Sample.

An example of this computation is as follows: An estimated 17.1 percent of the total rail tonnage of cattle moves within the eastern rail territory. This percentage was distributed among the four rates chosen for the eastern rail territory, in accordance with State-to-State volume movements. As shipments from Illinois to Ohio accounted for 18.1 percent of the eastern territorial movements, the Illinois to Ohio shipments were estimated to represent 3.1 percent of the total United States rail movement of beef cattle (.171 x .181 = .031). This weight of 3.1 percent was assigned to the Chicago-Cleveland origin and destination couplet, in computing the national subindex of rail freight rates for cattle and calves.

The point-to-point movements, including the Chicago-Cleveland combination, were chosen after study of the statistics for the leading public stockyards, and consultation with informed sources. Also, these sets of points were chosen within the framework of average length of haul (short-line) data, as shown in the ICC Waybill's State-to-State traffic survey. For example, the cattle movement from Illinois to New York averaged 818 short-line miles (distance measured over shortest rail routes for the respective shipments). An Illinois-New York combination which approximated 818 miles was chosen.

7/ Eastern or Official, Southern, Western Trunkline, Southwestern, and Mountain-Pacific.

In addition to measuring average length of haul between States, the movements within rail territories were chosen to approximate the average length of haul found within such territorities. A maximum tolerance of 5 percent was aimed for in the variations between average lengths of haul shown in the ICC Waybill Sample, and the index compilations. This attempt to maintain comparability in average length of haul is appropriate to the livestock and meat rail-freight rate structure, as these rates are established generally upon a distance or mileage-rate principle. Such application to other index series would provide a less valid measure because of the importance of equalization zones, transit balances, and other rate-making mechanisms

The Meat Index

The meat index covers only the period after 1940, and only one index computation is involved. This index is also developed from subindexes for fresh meats and packinghouse products. These subindexes are combined into an overall index number for meat in the same way as those for livestock.

The subindex for packinghouse products is further divided into two sections -- meats, cured, smoked and dried; and packinghouse products, other than meats, cured, smoked and dried. The groupings of products contained in these classifications, as well as those for fresh meat may be obtained from the Interstate Commerce Commission's schedules for class 215, fresh meats; class 217, cured meats; and class 219, packinghouse products edible.

Annual average freight rates for both meats and livestock are determined by the number of days that each rate remained in effect.

COMBINATION RAIL FREIGHT-RATE INDEX FOR FARM PRODUCTS

The combination index for agricultural commodities is developed from a weighted average of the index numbers for wheat, cotton, fresh fruits and vegetables, and livestock and meat. These basic index numbers are weighted in accordance with the average revenues received by class I railroads in 1947-49 for transport of commodities covered by the index numbers, plus such other farm products as bear similar rate structures. The weights applied to the individual index series are listed in table 8.

Within the data currently available, the revenue weighting method is the most equitable method for developing such a combined index series. The use of certain commodities in the weighting process, as bearing a similar freight-rate pattern to that of the commodity for which an index number exists, may be subject to question. Adjustment of such possible weaknesses is scheduled through the extension of index coverage to additional commodities.

OTHER RAIL FREIGHT-RATE MEASURES FOR FARM PRODUCTS

Indexes of average freight rates on railroad carlot traffic are published by the Interstate Commerce Commission. 8/ This study presents index series for (1) "all commodities," (2) commodity groups, (3) major classes within these commodity groups, and (4) territorial movements 9/ for all commodities and commodity groups.

The commodity groups as listed by the Interstate Commerce Commission include products of agriculture, animals and products, products of mines, forests, manufactures and miscellaneous. Agricultural classes within these commodity groups include wheat, corn, cotton in bales, oil-bearing crops, fresh fruits, fresh vegetables, potatoes, other than sweet, sugar beets, products of agriculture NOS, cattle and calves (single-deck), and meats, fresh NOS. Thus, average freight-rate index calculations are made upon a number of commodities included in the Bureau of Agricultural Economics index series.

This seeming duplication between index series is only partly so. The ICC index series were established to provide a comparable measure of the respective major classes of agricultural and nonagricultural traffic, and were developed within the framework of the ICC 1-percent sample. The ICC series were patterned to meet the requirements of that agency, and not to measure the behavior or freight rates between competing production areas, or to provide comparisons between individual farm products. Also, analysis is made on the basis of freight classes, which in some cases do not follow commodity lines. Thus, the ICC and BAE index series each serve the purposes for which they were established and they are only partly comparable. The method of construction and the actual changes measured vary between the series and the measure of comparability must be understood before using the two series concurrently.

The ICC indexes cover only the years beginning with 1947. Insofar as they are based on the ICC 1-percent Waybill Sample series, data prior to 1947 are not available. Volume weights and the base period for the index is the calendar-year 1950; whereas the BAE indexes are based upon the 1947-49 average. The ICC chose 1950 as the base year because it represented the first full year within the existence of the 1-percent Waybill Sample when no general rail freight-rate increases were placed into effect.

8/ Interstate Commerce Commission, Bureau of Transport Economics and Statistics, Indexes of Average Freight Rates on Railroad Carload Traffic, 1947-1951, Statement No. 535, File No. 26-C-11, February 1953.

9/ Railroad territories -- (1) Official, (2) Southern, (3) Western Trunkline, (4) Southwestern, and (5) Mountain-Pacific.

This index is based upon the mileage-block mechanism contained in the Waybill Sample. Within this study, all shipments are broken down into the average short-line length of haul, or the shortest rail distance for shipment between the actual origin and destination points shown in individual waybills. These mileage blocks are in 25-mile intervals for the first 100 miles, 50-mile intervals from 101 to 500 miles, 100-mile intervals from 501 to 1,000 miles, 200-mile intervals from 1,001 to 2,000, and 500-mile intervals for all hauls of more than 2,000 miles. The fixed weights for this weighted aggregative-type index are the respective tonnages shipped in 1950 within the specified mileage blocks.

The average revenue received by the railroads per 100 pounds of freight for shipments falling within these mileage blocks becomes the variable measured by the index compilation. Thus, the percentage relationships between average revenue for the respective years as compared to the 1950 base, with each weighted for 1950 volume, become the basis for the ICC index series.

Data used in developing the index numbers are not contained in total in the Waybill statistics as currently all outbound transits and rebilled shipments are eliminated from the index calculation. In the case of wheat, particularly, the removal of outbound transits had a small measurable effect upon the resultant index and caused it to be essentially a measure of average revenues received from first movements.

When shipments are not reported within a given mileage block during any year, the block is eliminated from the computation. Although many mileage blocks are eliminated, the relative percentage of the total volume so eliminated is comparatively small. The overall index number is affected very little.

The ICC indexes are specifically measures of changes in average rail revenue. But when weighted for a fixed volume, the changes in average rail revenue are implicitly expected to measure average changes in freight rates.

The ICC index system represents an economical way to measure an estimate of current changes in freight rates between overall agricultural, mineral, forest, and manufactured products, and gives an indication as to their relative behavior within the major rate-making territories. However, the territorial base is too wide, geographically, to allow for a measure of the relative changes in rates between competitive producing areas or between commodities which compete for the same markets. It cannot provide a long-term history of such rate behavior, and specific adjustments cannot be picked out or evaluated as to their overall effects within the traffic pattern for the commodity. For such purposes, the usefulness of the BAE method and index series is evident.

The difference in base period of the ICC indexes, the elimination of outbound transit shipments, the variation in commodities covered, the breakdown by class of freight rather than commodity, and the broader base

of rates used in the shipments included cause elements of incomparability to occur between the ICC and BAE indexes, even though each, in general, measure the same basic tendencies in rate changes.

But it is anticipated that, after the basic BAE indexes for commodities that require the greatest amount of internal knowledge are developed, the ICC method may be usable in developing additional BAE index series.

A test has been made in developing an index series for fresh meat, using the general ICC index method. The method was revised to include a 1948 weight base period and the 1947-49 average base period, as contained in the BAE index for fresh meat. This commodity was chosen because the removal of outbound transit and rebilled shipments were expected to have a minimum effect. Thus, the published ICC average revenue figures were estimated to approximate closely the data included in the ICC index for fresh meats. The problems of incomparability arising in this study were (1) variation in types of rates used, and (2) elimination of a part of the 1948 weight base volume, because data as to comparable mileage-blocks were lacking.

Rail rates contained in the BAE indexes are carlot rates bearing the highest minimum weights; whereas the ICC method measures rates of all types under which carlot shipments were made. The BAE index represents the lowest costs of rail transportation available to producers and the ICC index measures the average rates actually paid for carlot shipments.

Elimination of all mileage blocks showing shipments in 1948, which were not matched in all of the other years of the series, 1947 to 1951, resulted in the removal of about half of all mileage blocks reported in 1948. However, the total tonnage of the eliminated hauls represented less than 10 percent of the total tonnage reported in the 1948 waybill sample. Of the total 1948 tonnage, the volumes deleted totaled less than 6 percent of the shipments traveling under commodity rates, but removed more than 44 percent of all shipments traveling under other than commodity rates. As a result, the final adjusted 1948 weight base contained almost 94 percent shipments on commodity rates, and only about 6 percent on other types of rates.

With a changing pattern as to average lengths of haul, or volumes transported, the continued use of the same base-weight period, could be expected to result in inclusion of diminished base weights in the index computation. Although the weights would not be identical, an adequate comparability would be expected for a reasonable period of time for index purposes. This variation might even be of benefit, insofar as it would present an internal check as to the proper time for revision of base weights.

At various times, the Interstate Commerce Commission also publishes estimates of average percentage changes in rail rates resulting from general authorizations for rate changes. These statistics indicate changes

in average rate levels in effect at any given time. As such, they may not be directly comparable with data shown in either the ICC or BAE freight-rate indexes.

Rate levels change upon the effective date of the ICC order. But the full effect of a midyear change may not be measured in the indexes until the following year. The indexes, which measure average rates paid during each year, indicate trends in rate levels but are not immediately sensitive to such changes. With knowledge of the estimates of seasonal shipments used in computing the BAE index numbers, approximations of changes in rate levels may be obtained but the unadjusted index numbers generally cannot be used as close measures of rate levels on any given date.

Table 1.- Index numbers of railroad freight rates for specified agricultural commodities, 1913-52 1/

Year 2/	Railroad freight rate indexes, 1947-49 = 100					
	Livestock	Meats	Fruits and vegetables	Wheat	Cotton	Combined index
1913	45	---	61	52	75	55
1914	45	---	61	52	75	55
1915	45	---	61	52	75	55
1916	46	---	61	52	75	55
1917	46	---	61	52	78	55
1918	58	---	77	66	100	70
1919	58	---	77	66	102	70
1920	76	---	99	84	129	90
1921	75	---	97	82	133	87
1922	71	---	91	77	123	82
1923	71	---	89	77	123	82
1924	71	---	89	77	125	82
1925	70	---	89	77	125	82
1926	70	---	89	77	125	82
1927	70	---	89	77	124	81
1928	70	---	87	76	123	80
1929	69	---	87	75	122	80
1930	69	---	88	75	120	80
1931	69	---	88	72	104	78
1932	69	---	88	75	80	78
1933	69	---	84	75	72	77
1934	65	---	82	75	72	75
1935	65	---	81	72	73	74
1936	65	---	80	71	73	73
1937	65	---	79	72	77	73
1938	73	---	82	75	81	77
1939	73	---	81	75	81	77
1940	73	73	81	75	77	76
1941	74	74	80	76	78	77
1942	75	75	80	77	80	77
1943	73	73	79	75	78	76
1944	73	73	79	75	78	76
1945	73	72	79	75	78	76
1946	75	71	80	76	79	77
1947	86	85	90	87	90	88
1948	103	103	103	103	102	103
1949	111	112	107	109	108	109
1950	114	115	109	112	111	112
1951	117	119	110	115	114	114
1952	127	127	116	123	124	122

1/ Estimated average freight rates paid by shippers for lowest cost carlot shipments during the year. Three percent Federal transportation tax and protective services not included.

2/ Crop year beginning July for 1913-44, calendar years 1945-52.

Table 2.- Rail freight rate indexes for agricultural commodities, and estimated cumulative percentage increases, 1945-52 1/

Commodities	(1947-49 = 100)								
	1945	1946	1947	1948	1949	1950	1951	1952 2/	Estimated cumulative increases 2/
Wheat index	3/ 75	76	87	103	109	112	115	123	64
Cotton index	78	79	90	102	108	111	114	124	59
Livestock index	73	75	86	103	111	114	117	127	74
Cattle and calves	73	75	86	103	111	114	117	127	74
Sheep and goats	74	75	87	103	110	113	116	127	72
Swine	73	75	85	103	112	114	119	129	77
Meat index	72	71	85	103	112	115	119	127	76
Fresh meats	70	71	84	103	113	116	120	129	84
Cured and dried meats	4/ 80	72	86	103	111	114	117	125	5/ 74
Other packinghouse products, edible	4/ 74	71	86	103	111	114	117	123	5/ 73
Fresh fruits index	79	80	90	103	107	108	109	114	44
Citrus index	78	79	90	103	107	108	109	114	46
Grapefruit	75	76	88	103	109	110	111	117	56
Lemons	81	82	90	103	107	108	109	114	41
Oranges	79	80	90	103	107	107	108	113	43
Tangerines	72	73	90	102	108	108	112	119	65
Apple index	75	78	91	103	106	108	110	115	53
Other fruits index	81	84	91	103	106	107	110	115	42
Grapes	82	85	93	102	106	106	109	113	38
Peaches	77	79	87	105	108	110	112	121	57
Pears	81	84	91	103	106	107	110	115	42
Plums and fresh prunes	83	85	91	103	106	107	109	114	37

Continued

Table 2.- Rail freight rate indexes for agricultural commodities, and estimated cumulative percentage increases, 1945-52 1/ - Continued

Commodities	(1947-49 = 100)								
	1945	1946	1947	1948	1949	1950	1951	1952 2/	Estimated cumulative increases 2/
Fresh vegetables index 6/	79	80	89	103	108	109	111	117	48
Potato index	74	75	86	103	111	112	113	121	64
Other vegetables and melons index	81	83	91	103	106	108	109	114	41
Cabbage	76	77	88	103	109	112	113	119	57
Cantaloupes	85	87	92	103	105	106	108	112	32
Carrots	82	83	91	103	106	107	109	113	38
Celery	81	82	91	103	106	107	108	112	38
Lettuce	83	85	93	102	105	106	108	112	35
Onions, dry	77	79	88	103	109	110	113	120	56
Tomatoes	81	82	91	103	106	107	110	114	41
Watermelons	75	76	86	105	109	112	113	122	63
Fresh fruits and vegetables index	79	80	90	103	107	109	110	116	47
Combined index for agricultural commodities	76	77	88	103	109	112	114	122	61

1/ Estimated average freight rates paid by shippers for lowest cost carlot shipments during calendar years. Three percent Federal transportation tax and protective services not included.

2/ Includes Ex Parte 175 rate increase only for portion of year's shipments occurring after May 2, 1952. Current rates represent cumulative average increases higher than figures shown. Entire percentage increases from Ex Parte 175 will be reflected in 1953 index numbers. ICC estimates of these total percentage increases are wheat 70.6, livestock 77.2, meats 88.4, citrus 55.1, other fruits 53.5, fresh vegetables 57.5.

3/ Index numbers of published index series are underlined.

4/ Rate reductions made for shipments from Midwestern packing plants to Pacific Coast points on November 10, 1945.

5/ Estimated rate increases since 1946.

6/ Includes melons.

Table 3.- Traffic sample and weights assigned to individual movements, revised index of rail freight rates for wheat

State	State weights	From	To	Movement weights
Primary movements:				
California	9	Paso Robles, Calif.	San Francisco, Calif.	9
Oregon	23	Pendleton, Oreg.	Portland, Oreg.	10
		Pendleton, Oreg.	Seattle, Wash.	8
		Heppner, Oreg.	Portland, Oreg. (export) 1/	5
Washington	62	Colfax, Wash.	Portland, Oreg.	12
		Colfax, Wash.	Seattle, Wash.	30
		Colfax, Wash.	Seattle, Wash. (export) 1/	10
		Colfax, Wash.	Spokane, Wash.	10
Idaho	31	Moscow, Idaho	Seattle, Wash.	15
		Pocatello, Idaho	Ogden, Utah	11
		Twin Falls, Idaho	San Francisco, Calif.	5
Utah	5	Logan, Utah	San Francisco, Calif.	5
Wyoming	6	Torrington, Wyo.	Kansas City, Mo.	6
Montana	69	Scobey, Mont.	Minneapolis, Minn. and Duluth, Minn.	11
		Lewistown, Mont.	Minneapolis, Minn. and Duluth, Minn.	33
		Shelby, Mont.	Seattle, Wash.	21
		Bozeman, Mont.	San Francisco, Calif.	4
Colorado	51	Springfield, Colo.	Fort Worth, Tex.	5
		Sterling, Colo.	Omaha, Nebr.	8
		Wray, Colo.	Kansas City, Mo.	38
North Dakota	111	Larimore, N. Dak.	Minneapolis, Minn. and Duluth, Minn.	37
		Leal, N. Dak.	Minneapolis, Minn. and Duluth, Minn.	37
		Makoti, N. Dak.	Minneapolis, Minn. and Duluth, Minn.	37
South Dakota	35	Groton, S. Dak.	Minneapolis, Minn.	23
		Gettysburg, S. Dak.	Minneapolis, Minn.	12
Minnesota	15	Osakis, Minn.	Minneapolis, Minn.	15
Iowa	6	Red Oak, Iowa	Chicago, Ill.	6
Nebraska	60	Beatrice, Nebr.	Kansas City, Mo.	12
		Minden, Nebr.	Kansas City, Mo.	12
		Chadron, Nebr.	Omaha, Nebr.	12
		Sidney, Nebr.	Omaha, Nebr.	24
Missouri	27	Marshall, Mo.	St. Louis, Mo.	27
Kansas	175	Brewster, Kans.	Kansas City, Mo.	47
		Great Bend, Kans.	Kansas City, Mo.	47
		Hutchinson, Kans.	Kansas City, Mo.	46
		Wichita, Kans.	Galveston, Tex. (export)	35

Continued

Table 3.- Traffic sample and weights assigned to individual movements, revised index of rail freight rates for wheat - Continued

State	State weights	From	To	Movement weights
Oklahoma	83	Enid, Okla.	New Orleans, La. (export)	2
		Guymon, Okla.	Galveston, Tex. (export)	22
		Hobart, Okla.	Fort Worth, Tex.	23
		Guymon, Okla.	Kansas City, Mo.	11
		Enid, Okla.	Oklahoma City, Okla.	25
Texas	71	Amarillo, Tex.	Fort Worth, Tex.	18
		Amarillo, Tex.	Sherman, Tex.	18
		Amarillo, Tex.	Galveston, Tex. (export) 1/	35
Illinois	39	La Prairie, Ill.	St. Louis, Mo.	13
		Carthage, Ill.	Peoria, Ill.	13
		Rantoul, Ill.	Chicago, Ill.	13
Indiana	30	Goshen, Ind.	Chicago, Ill.	7
		Rushville, Ind.	Baltimore, Md.	12
		Warsaw, Ind.	Indianapolis, Ind.	11
Ohio	43	Tiffin, Ohio	Buffalo, N. Y.	12
		Springfield, Ohio	Philadelphia, Pa.	12
		Springfield, Ohio	Nashville, Tenn.	2
		Beaver Dam, Ohio	Columbus, Ohio	17
Michigan	26	Otsego, Mich.	Detroit, Mich.	8
		Owosso, Mich.	Cleveland, Ohio	8
		Imlay City, Mich.	Philadelphia, Pa. (export)	10
New York	7	Canandaigua, N. Y.	Buffalo, N. Y.	7
Pennsylvania	10	York, Pa.	Baltimore, Md.	5
		Lancaster, Pa.	Philadelphia, Pa.	5
Virginia	6	Staunton, Va.	Richmond, Va.	6
Total	1,000			1,000
Secondary movements		Omaha, Nebr.	Galveston, Tex. (export)	6
		Omaha, Nebr.	Chicago, Ill.	6
		Omaha, Nebr.	Milwaukee, Wis.	6
		Kansas City, Mo.	Chicago, Ill.	6
		Kansas City, Mo.	Galveston, Tex. (export)	6
		Kansas City, Mo.	New York City, N. Y.	6
		Kansas City, Mo.	Philadelphia, Pa. (export)	6
		Kansas City, Mo.	Columbus, Ohio	6

Continued

Table 3.- Traffic sample and weights assigned to individual movements, revised index of rail freight rates for wheat - Continued

State	State weights	From	To	Movement weights
		St. Louis, Mo.	New Orleans, La. (export)	6
		St. Louis, Mo.	Louisville, Ky.	6
		Minneapolis, Minn.	Galveston, Tex. (export)	6
		Minneapolis, Minn.	Baltimore, Md.	6
		Minneapolis, Minn.	Chicago, Ill.	6
		Minneapolis, Minn.	Duluth, Minn.	6
		Chicago, Ill.	Buffalo, N. Y.	6
		Chicago, Ill.	Nashville, Tenn.	6
		Chicago, Ill.	Philadelphia, Pa.	6
		Cincinnati, Ohio	Atlanta, Ga.	6
		Cincinnati, Ohio	Knoxville, Tenn.	6
		Memphis, Tenn.	Atlanta, Ga.	6
		Sioux City, Iowa	Galveston, Tex. (export)	6
		Sioux City, Iowa	Baltimore, Md. (export)	6
		Fort Worth, Tex.	Atlanta, Ga.	6
		Buffalo, N. Y.	New York City, N. Y. (ex-lake)	6
		Buffalo, N. Y.	Albany, N. Y. (export)	6
Total				150

1/ Intrastate or interstate export rate, whichever lowest.

Table 4.- Traffic sample and weights assigned to individual shipment couplets, revised index of rail freight rates for cotton

Point-to-point movements		Type of market	Weight
California			
Bakersfield	- Los Angeles, Calif.	Export	126
Bakersfield	- San Francisco, Calif.	Export	136
Bakersfield	- Houston, Tex.	Export	169
Bakersfield	- New Orleans, La.	Export	100
Bakersfield	- Greenville, S. C.	Mills	152
Bakersfield	- Raleigh, N. C.	Mills	88
Bakersfield	- Alexander City, Ala.	Mills	152
Bakersfield	- Boston, Mass.	Mills	51
	Total		974
Arizona			
Phoenix	- Los Angeles, Calif.	Export	80
Phoenix	- New Orleans, La.	Export	40
Phoenix	- Galveston, Tex.	Export	103
Phoenix	- Gastonia, N. C.	Mills	128
Phoenix	- Meridian, Miss.	Mills	42
Phoenix	- Manchester, N. H.	Mills	20
	Total		413
New Mexico			
Las Cruces	- New Orleans, La.	Export	25
Las Cruces	- Houston, Tex.	Export	109
Las Cruces	- Alexander City, Ala.	Mills	14
Roswell	- Raleigh, N. C.	Mills	28
Roswell	- Boston, Mass.	Mills	15
	Total		191
Texas			
Palestine	- New Orleans, La.	Export	68
Corsicana	- Galveston, Tex.	Export	336
Marlin	- Galveston, Tex.	Export	336
Memphis	- Galveston, Tex.	Export	337
Spur	- Houston, Tex.	Export	337
Georgetown	- Fall River Wharf, Mass.	Mills	100
Denton	- New York City, N. Y.	Mills	99
Memphis	- Alexander City, Ala.	Mills	128
Corsicana	- West Point, Ga.	Mills	477
Marlin	- Raleigh, N. C.	Mills	271
Palestine	- Greenville, S. C.	Mills	269
	Total		2,758

Continued

Table 4.- Traffic sample and weights assigned to individual shipment couplets, revised index of rail freight rates for cotton - Continued

Point-to-point movements		Type of market	Weight
Oklahoma			
Chickasha	- Galveston, Tex.	Export	64
Duke	- Galveston, Tex.	Export	63
Guthrie	- Boston, Mass.	Mills	29
Ardmore	- Greenville, S. C.	Mills	46
Hugo	- West Point, Ga.	Mills	127
	Total		329
Arkansas			
Helena	- New Orleans, La.	Export	44
Blytheville	- Boston, Mass.	Mills	56
Clarendon	- Charlotte, N. C.	Mills	156
Pine Bluff	- Rome, Ga.	Mills	77
	Total		333
Missouri			
Caruthersville	- New Orleans, La.	Export	72
Caruthersville	- Boston, Mass.	Mills	52
Caruthersville	- Alexander City, Ala.	Mills	82
Caruthersville	- Greenville, S. C.	Mills	76
Caruthersville	- Rome, Ga.	Mills	67
	Total		349
Tennessee			
Murfreesboro	- New Orleans, La.	Export	101
Memphis	- Spartanburg, S. C.	Mills	118
Memphis	- Boston, Mass.	Mills	61
Memphis	- West Point, Ga.	Mills	60
Memphis	- Alexander City, Ala.	Mills	29
	Total		369
Mississippi			
Clarksdale	- New Orleans, La.	Export	56
Clarksdale	- Boston, Mass.	Mills8	186
Tunica	- Spartanburg, S. C.	Mills	243
Tupelo	- Greensboro, N. C.	Mills	369
Meridian	- West Point, Ga.	Mills	282
	Total		1,136

Continued

Table 4.- Traffic sample and weights assigned to individual shipment couplets, revised index of rail freight rates for cotton - Continued

Point-to-point movements		Type of market	Weight
Louisiana			
Shreveport	- New Orleans, La.	Export	162
Alexandria	- Greenville, S. C.	Mills	66
Alexandria	- West Point, Ga.	Mills	76
Alexandria	- Charlotte, N. C.	Mills	99
Shreveport	- Boston, Mass.	Mills	57
	Total		460
Alabama			
Huntsville	- Greenville, S. C.	Mills	56
Myrtlewood	- Rome, Ga.	Mills	122
Selma	- Anniston, Ala.	Mills	260
Talladega	- Charlotte, N. C.	Mills	37
	Total		475
Georgia			
Griffen	- Columbus, Ga.	Mills	196
Cordele	- Greenville, S. C.	Mills	101
Griffen	- Alexander City, Ala.	Mills	35
	Total		332
South Carolina			
Sumter	- Greenville, S. C.	Mills	252
Sumter	- Raleigh, N. C.	Mills	121
Sumter	- Boston, Mass.	Mills	22
	Total		395
North Carolina			
Tarboro	- Greensboro, N. C.	Mills	219
Fayetteville	- Spartanburg, S. C.	Mills	57
	Total		276
	Total Weights		8,790

Table 5.- Estimated rail shipments of cotton, by origin and by destination, average 1948 and 1949 1/

Item	Shipments for: Export from: Texas ports	New Orleans	Pacific ports	Total	Domestic consumption in: Southeast	North	Total	Total
	1,000 bales	1,000 bales	1,000 bales	1,000 bales	1,000 bales	1,000 bales	1,000 bales	1,000 bales
State of origin								
California	169	100	262	531	392	51	443	974
Arizona	103	40	80	223	170	20	190	413
New Mexico	109	25	---	134	42	15	57	191
Texas	1,346	68	---	1,414	1,145	199	1,344	2,758
Oklahoma	127	---	---	127	173	29	202	329
Arkansas 2/	---	44	---	44	233	56	289	333
Missouri	---	72	---	72	225	52	277	349
Tennessee	---	101	---	101	207	61	268	369
Mississippi	---	56	---	56	894	186	1,080	1,136
Louisiana	---	162	---	162	241	57	298	460
Alabama	---	---	---	---	475	---	475	475
Georgia	---	---	---	---	332	---	332	332
South Carolina	---	---	---	---	373	22	395	395
North Carolina	---	---	---	---	276	---	276	276
Total	1,854	668	342	2,864	5,178	748	5,926	8,790
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	
Percentage distribution of shipments								
Sample	64.74	23.32	11.94	100.00	87.38	12.62	100.00	
Actual	3/ 62.35	3/ 28.57	3/ 9.08	100.00	85.29	4/ 14.71	100.00	
Variation	+2.39	-5.25	+2.86		+2.09	-2.09		

1/ Included in traffic sample for revised cotton rail freight-rate index series.

2/ Subject to revision.

3/ Texas ports, New Orleans, and Pacific ports originated 91.73 percent of total cotton exports. Ratios are between these exporting points.

4/ Includes 4.78 percent consumed in other than North Atlantic and Southeastern States.

Table 6.- Point-to-point rail freight movements, weights for commodities, and movements, revised rail freight-rate index for fresh fruits and vegetables

Point-to-point movements		Commodity weight 1/	Movement weight 2/
			Percent
FRUITS			
Citrus Fruit			
Grapefruit			
Arcadia, Fla.	- St. Louis, Mo.		3
Arcadia, Fla.	- Chicago, Ill.		5
Orlando, Fla.	- Pittsburgh, Pa.		4
Orlando, Fla.	- New York, N. Y.		27
Orlando, Fla.	- Boston, Mass.		9
Harlingen, Tex.	- Chicago, Ill.		19
Harlingen, Tex.	- New York, N. Y.		5
Harlingen, Tex.	- Kansas City, Mo.		19
So. Calif.	- Chicago, Ill.		9
Total		2,827	100
Lemons			
So. Pacific Coast	- New York, N. Y.		30
So. Pacific Coast	- Pittsburgh, Pa.		6
So. Pacific Coast	- Chicago, Ill.		16
So. Pacific Coast	- St. Louis, Mo.		10
So. Pacific Coast	- Kansas City, Mo.		6
So. Pacific Coast	- Denver, Colo.		3
So. Pacific Coast	- Dallas, Tex.		12
So. Pacific Coast	- New Orleans, La.		12
So. Pacific Coast	- Portland, Oreg.		5
Total		1,516	100
Oranges			
Fullerton, Calif.	- Denver, Colo.		2
Fullerton, Calif.	- Dallas, Tex.		3
Fullerton, Calif.	- St. Louis, Mo.		9
Fullerton, Calif.	- Pittsburgh, Pa.		5
Fullerton, Calif.	- New York, N. Y.		17
So. Pacific Coast	- Chicago, Ill.		6
So. Pacific Coast	- Kansas City, Mo.		5
So. Pacific Coast	- Detroit, Mich.		7
So. Pacific Coast	- Seattle, Wash.		5
Harlingen, Tex.	- Chicago, Ill.		2
Arcadia, Fla.	- St. Louis, Mo.		2
Arcadia, Fla.	- Chicago, Ill.		4
Orlando, Fla.	- Pittsburgh, Pa.		2
Orlando, Fla.	- New York, N. Y.		23
Orlando, Fla.	- Boston, Mass.		8
Total		8,247	100

Continued

Table 6.- Point-to-point rail freight movements, weights for commodities, and movements, revised rail freight-rate index for fresh fruits and vegetables - Continued

Point-to-point movements		Commodity weight 1/	Movement weight 2/
			Percent
Tangerines			
Orlando, Fla.	- New York, N. Y.		100
Total		289	100
Non Citrus Fruit			
Apples			
Winchester, Va.	- St. Louis, Mo.		5
Winchester, Va.	- New York, N. Y.		2
Carrollton, Ill.	- Detroit, Mich.		3
Barker, N. Y.	- New York, N. Y.		3
Payette, Idaho	- Kansas City, Mo.		6
Yakima, Wash.	- New York, N. Y.		9
Yakima, Wash.	- St. Louis, Mo.		10
Yakima, Wash.	- Pittsburgh, Pa.		3
Yakima, Wash.	- Detroit, Mich.		7
Yakima, Wash.	- Kansas City, Mo.		9
Yakima, Wash.	- Chicago, Ill.		9
Yakima, Wash.	- Dallas, Tex.		12
Yakima, Wash.	- Denver, Colo.		2
Yakima, Wash.	- Atlanta, Ga.		10
Yakima, Wash.	- Los Angeles, Calif.		5
Yakima, Wash.	- Seattle, Wash.		5
Total		3,963	100
Grapes			
California	- Denver, Colo.		4
California	- Kansas City, Mo.		7
California	- St. Louis, Mo.		6
California	- Chicago, Ill.		10
California	- Detroit, Mich.		12
California	- Pittsburgh, Pa.		9
California	- New York, N. Y.		38
California	- Atlanta, Ga.		6
California	- Dallas, Tex.		4
California	- Seattle, Wash.		4
Total		3,099	100
Peaches			
Centralia, Ill.	- Chicago, Ill.		10
Ridge Springs, S. C.	- Chicago, Ill.		5
Ridge Springs, S. C.	- New York, N. Y.		18
Ft. Valley, Ga.	- Cincinnati, Ohio		9
Ft. Valley, Ga.	- Chicago, Ill.		5

Continued

Table 6.- Point-to-point rail freight movements, weights for commodities, and movements, revised rail freight-rate index for fresh fruits and vegetables - Continued

Point-to-point movements		Commodity weight 1/	Movement weight 2/
			Percent
Peaches (contd.)			
Ft. Valley, Ga.	- Boston, Mass.		4
Ft. Smith, Ark.	- St. Louis, Mo.		4
California	- Kansas City, Mo.		9
California	- St. Louis, Mo.		5
California	- Chicago, Ill.		2
California	- Detroit, Mich.		3
California	- New York, N. Y.		3
Grand Junction, Colo.	- Denver, Colo.		6
Grand Junction, Colo.	- Des Moines, Iowa		8
Grand Junction, Colo.	- Chicago, Ill.		2
Grand Junction, Colo.	- Dallas, Tex.		3
Total		1,870	100
Pears			
California	- Dallas, Tex.		7
California	- Kansas City, Mo.		3
California	- St. Louis, Mo.		2
California	- Chicago, Ill.		3
California	- Detroit, Mich.		4
California	- Pittsburgh, Pa.		5
California	- New York, N. Y.		15
Yakima, Wash.	- Chicago, Ill.		12
Yakima, Wash.	- New York, N. Y.		20
Yakima, Wash.	- Los Angeles, Calif.		4
Medford, Oreg.	- Portland, Oreg.		25
Total		1,595	100
Plums and fresh prunes			
Payette, Idaho	- Kansas City, Mo.		3
Payette, Idaho	- Chicago, Ill.		6
Payette, Idaho	- New York, N. Y.		15
California	- Kansas City, Mo.		10
California	- Chicago, Ill.		20
California	- New York, N. Y.		46
Total		780	100
VEGETABLES			
Cabbage			
Webster, N. Y.	- Chicago, Ill.		8
Winter Garden, Fla.	- New York, N. Y.		21
Winter Garden, Fla.	- Chicago, Ill.		9
Winter Garden, Fla.	- Memphis, Tenn.		3

Continued

Table 6.- Point-to-point rail freight movements, weights for commodities, and movements, revised rail freight-rate index for fresh fruits and vegetables - Continued

Point-to-point movements		Commodity weight 1/	Movement weight 2/
			Percent
Cabbage (contd.)			
Crystal Springs, Miss.	- Chicago, Ill.		8
Racine, Wis.	- Kansas City, Mo.		10
Harlingen, Tex.	- Chicago, Ill.		6
Harlingen, Tex.	- St. Louis, Mo.		12
Harlingen, Tex.	- New York, N. Y.		12
Los Angeles, Calif.	- New York, N. Y.		1
Los Angeles, Calif.	- St. Louis, Mo.		3
Los Angeles, Calif.	- San Francisco, Calif.		2
Total		2,244	100
Cantaloupes and miscellaneous melons			
Brawley, Calif.	- Atlanta, Ga.		5
Brawley, Calif.	- St. Louis, Mo.		6
Brawley, Calif.	- Chicago, Ill.		13
Brawley, Calif.	- New York City, N. Y.		36
Brawley, Calif.	- Pittsburgh, Pa.		20
Salinas, Calif.	- Kansas City, Mo.		5
Salinas, Calif.	- Detroit, Mich.		15
Total		2,761	100
Carrots			
Williamson, N. Y.	- New York City, N. Y.		3
San Benito, Tex.	- Philadelphia, Pa.		13
San Benito, Tex.	- Cincinnati, Ohio		5
San Benito, Tex.	- Kansas City, Mo.		3
Salinas, Calif.	- St. Louis, Mo.		7
Salinas, Calif.	- Chicago, Ill.		17
Salinas, Calif.	- New York City, N. Y.		40
Salinas, Calif.	- Los Angeles, Calif.		7
Total		2,407	100
Celery			
Marion, N. Y.	- New York, N. Y.		5
Sanford, Fla.	- New York, N. Y.		22
Sanford, Fla.	- Chicago, Ill.		13
Sanford, Fla.	- Kansas City, Mo.		1
Los Angeles, Calif.	- New York, N. Y.		24
Los Angeles, Calif.	- Chicago, Ill.		15
Los Angeles, Calif.	- St. Louis, Mo.		14
Los Angeles, Calif.	- New Orleans, La.		3
American Fork, Utah	- Chicago, Ill.		3
Total		2,491	100

Continued

Table 6.- Point-to-point rail freight movements, weights for commodities, and movements, revised rail freight-rate index for fresh fruits and vegetables - Continued

Point-to-point movements		Commodity weight 1/	Movement weight 2/
			Percent
Lettuce			
Salinas, Calif.	- Pittsburgh, Pa.		14
Salinas, Calif.	- Detroit, Mich.		12
Salinas, Calif.	- Chicago, Ill.		6
Salinas, Calif.	- St. Louis, Mo.		14
Salinas, Calif.	- Dallas, Tex.		9
Salinas, Calif.	- Seattle, Wash.		5
El Centro, Calif.	- Atlanta, Ga.		7
Phoenix, Ariz.	- New York, N. Y.		14
Phoenix, Ariz.	- Chicago, Ill.		6
Phoenix, Ariz.	- Minneapolis, Minn.		11
Phoenix, Ariz.	- New Orleans, La.		2
Total		7,401	100
Onions			
Albion, N. Y.	- Pittsburgh, Pa.		1
Albion, N. Y.	- New York, N. Y.		5
Elba, N. Y.	- Boston, Mass.		4
Martin, Mich.	- New York, N. Y.		5
Martin, Mich.	- Chicago, Ill.		5
Owatonna, Minn.	- Chicago, Ill.		3
Owatonna, Minn.	- Pittsburgh, Pa.		7
Rocky Ford, Colo.	- Chicago, Ill.		2
Rocky Ford, Colo.	- Kansas City, Mo.		7
Rocky Ford, Colo.	- Dallas, Tex.		3
Laredo, Tex.	- Pittsburgh, Pa.		6
Laredo, Tex.	- New York, N. Y.		8
Laredo, Tex.	- Chicago, Ill.		5
Laredo, Tex.	- St. Louis, Mo.		2
Stockton, Calif.	- New York, N. Y.		2
Stockton, Calif.	- Chicago, Ill.		2
Stockton, Calif.	- New Orleans, La.		3
Stockton, Calif.	- Dallas, Tex.		1
Stockton, Calif.	- Los Angeles, Calif.		4
Twin Falls, Idaho	- New York, N. Y.		7
Twin Falls, Idaho	- Chicago, Ill.		3
Twin Falls, Idaho	- Kansas City, Mo.		1
Nyssa, Oreg.	- San Francisco, Calif.		4
Nyssa, Oreg.	- Seattle, Wash.		2
Nyssa, Oreg.	- Chicago, Ill.		6
Total		3,225	100

Continued

Table 6.- Point-to-point rail freight movements, weights for commodities, and movements, revised rail freight-rate index for fresh fruits and vegetables - Continued

Point-to-point movements		Commodity weight 1/	Movement weight 2/
			Percent
Tomatoes			
Jacksonville, Tex.	- St. Louis, Mo.		6
Jacksonville, Tex.	- Chicago, Ill.		12
San Benito, Tex.	- New York, N. Y.		22
San Benito, Tex.	- Dallas, Tex.		6
Sanford, Fla.	- Boston, Mass.		5
Sanford, Fla.	- New York, N. Y.		3
Sanford, Fla.	- Chicago, Ill.		7
Palmetto, Fla.	- New York, N. Y.		7
Bakersfield, Calif.	- Chicago, Ill.		5
Bakersfield, Calif.	- New York, N. Y.		11
Bakersfield, Calif.	- St. Louis, Mo.		7
Bakersfield, Calif.	- New Orleans, La.		5
Bakersfield, Calif.	- Seattle, Wash.		4
Total		2,496	100
Watermelons			
Alachua, Fla.	- Chicago, Ill.		10
Alachua, Fla.	- New York, N. Y.		19
Valdosta, Ga.	- Chicago, Ill.		6
Valdosta, Ga.	- New York, N. Y.		11
Orangeburg, S. C.	- New York, N. Y.		11
Weslaco, Tex.	- Philadelphia, Pa.		9
Weslaco, Tex.	- Chicago, Ill.		12
Weslaco, Tex.	- Kansas City, Mo.		11
Brawley, Calif.	- Seattle, Wash.		7
Brawley, Calif.	- Omaha, Nebr.		4
Total		2,992	100
Potatoes, not sweet			
Caribou, Maine	- Boston, Mass.		4
Caribou, Maine	- New York, N. Y.		9
Caribou, Maine	- Philadelphia, Pa.		4
Caribou, Maine	- Pittsburgh, Pa.		4
Caribou, Maine	- Atlanta, Ga.		2
Bridgehampton, N. Y.	- New York, N. Y.		2
Wayland, N. Y.	- Cleveland, Ohio		4
Wayland, N. Y.	- Atlanta, Ga.		3
Cape Charles, Va.	- Cleveland, Ohio		2
Winter Garden, Fla.	- New York, N. Y.		1
Winter Garden, Fla.	- Chicago, Ill.		1
Meggett, S. C.	- Chicago, Ill.		2
Meggett, S. C.	- New York, N. Y.		2
San Benito, Tex.	- Chicago, Ill.		1

Continued

Table 6.- Point-to-point rail freight movements, weights for commodities, and movements, revised rail freight-rate index for fresh fruits and vegetables - Continued

Point-to-point movements		Commodity weight 1/	Movement weight 2/
			Percent
Potatoes, not sweet (contd.)			
Grand Forks, Minn.	- Chicago, Ill.		7
Moorhead, Minn.	- Kansas City, Mo.		6
Mitchell, Nebr.	- St. Louis, Mo.		3
Monte Vista, Colo.	- Kansas City, Mo.		5
Monte Vista, Colo.	- Dallas, Tex.		1
Twin Falls, Idaho	- Chicago, Ill.		8
Twin Falls, Idaho	- Oklahoma City, Okla.		7
Twin Falls, Idaho	- Los Angeles, Calif.		6
Shafter, Calif.	- Chicago, Ill.		2
Bakersfield, Calif.	- New York, N. Y.		3
Bakersfield, Calif.	- San Francisco, Calif.		5
Bakersfield, Calif.	- Dallas, Tex.		3
Bakersfield, Calif.	- St. Louis, Mo.		3
Total		28,114	100

1/ Average of 1947-49 total rail shipments divided by 10 for ease of computation.

2/ Weights represent estimated relation of individual rail shipments of a commodity to total rail shipments of same commodity.

Table 7.- Average monthly rail shipments, shown as percentage of total rail shipments for calendar year, fresh fruits and vegetables, 1947-49

Commodity and producing area	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average 1947-49
	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Carloads
Citrus fruit													
Grapefruit													
Arizona	11	8	10	10	15	24	2	-	-	3	8	9	1,007
California	2	2	2	3	6	20	34	21	9	1	-	-	1,514
Florida	11	11	15	14	12	5	1	-	3	12	9	7	12,229
Texas	18	17	19	14	8	2	1	-	-	2	9	10	13,536
Lemons													
California	6	5	7	8	12	16	16	10	6	5	5	4	15,064
Oranges and Satsumas:													
Arizona	10	1	10	12	14	2	-	-	-	-	20	31	609
California	7	7	7	7	8	10	11	11	10	9	6	7	47,704
Florida	15	13	16	14	13	8	1	-	-	3	7	10	30,505
Texas	28	24	12	6	5	1	-	-	-	5	7	12	1,584
Tangerines													
Florida	34	6	3	1	-	-	-	-	-	1	16	39	2,866
Noncitrus fruit													
Apples													
California	1	1	1	-	1	1	38	40	10	5	2	-	1,005
Idaho	6	4	1	-	-	-	-	-	23	37	19	10	1,657
Illinois	2	2	1	1	1	12	20	5	19	27	9	1	742
Oregon	13	11	11	8	4	-	-	1	7	21	15	9	1,570
Virginia	21	14	10	8	4	3	2	2	13	12	5	6	1,524
Washington	12	13	11	8	5	2	-	-	8	17	13	11	29,402
Grapes													
California	1	1	-	-	-	1	7	12	28	37	9	4	30,736

Continued

Table 7.- Average monthly rail shipments, shown as percentage of total rail shipments for calendar year, fresh fruits and vegetables, 1947-49 - Continued

Commodity and producing area	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average 1947-49
	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Carloads
Peaches													
Arkansas	-	-	-	-	-	5	70	25	-	-	-	-	706
California	-	-	-	-	-	8	61	30	1	-	-	-	3,325
Colorado	-	-	-	-	-	-	-	61	38	1	-	-	2,627
Georgia	-	-	-	-	1	29	62	8	-	-	-	-	2,651
Illinois	-	-	-	-	-	1	1	89	9	-	-	-	1,193
Michigan	-	-	-	-	-	-	-	5	89	6	-	-	320
N. Carolina	-	-	-	-	-	1	65	34	-	-	-	-	618
S. Carolina	-	-	-	-	-	4	57	39	-	-	-	-	4,565
Washington	-	-	-	-	-	-	4	54	42	-	-	-	635
Pears													
California	1	1	-	-	-	1	32	41	17	4	2	1	4,702
Oregon	8	8	7	4	1	-	-	7	28	16	10	11	5,444
Washington	5	2	2	-	-	-	1	18	37	22	8	5	5,388
Plums and prunes													
California	-	-	-	-	4	37	39	17	3	-	-	-	1,329
Idaho	-	-	-	-	-	-	-	21	77	2	-	-	659
Oregon and Washington	-	-	-	-	-	-	7	64	29	-	-	-	1,754
Melons													
Cantaloupes and miscellaneous 1/													
Arizona	-	-	-	-	1	36	59	4	-	-	-	-	9,977
California	-	-	-	-	2	26	21	30	17	4	-	-	16,580
Watermelons													
California and Arizona	-	-	-	-	2	35	45	17	1	-	-	-	3,409

Continued

Table 7.- Average monthly rail shipments, shown as percentage of total rail shipments for calendar year, fresh fruits and vegetables, 1947-49 - Continued

Commodity and producing area	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average 1947-49
	Pct.	Pct.	Pct.	Pct.	Pct.	Pct	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Carloads
Florida	-	-	-	-	36	61	3	-	-	-	-	-	8,683
Georgia	-	-	-	-	-	47	50	3	-	-	-	-	5,040
Texas	-	-	-	-	1	33	55	11	-	-	-	-	7,775
S. Carolina	-	-	-	-	-	8	81	11	-	-	-	-	2,939
Vegetables													
Cabbage													
California	14	21	20	14	19	7	1	-	-	-	1	3	942
Florida	16	20	33	24	4	-	-	-	-	-	-	3	4,188
Mississippi	-	-	-	10	89	1	-	-	-	-	-	-	1,374
New York	21	8	4	-	-	-	-	-	3	13	27	24	1,824
Texas	25	29	22	10	1	-	-	-	-	-	1	12	6,805
Wisconsin	4	1	-	-	-	-	3	7	26	40	15	4	1,376
Carrots													
Arizona	13	8	9	9	26	18	1	-	-	-	2	14	3,789
California	6	6	8	11	13	13	12	6	4	7	9	5	12,658
N. Mexico	-	-	-	-	-	-	-	23	43	32	2	-	1,239
New York	15	10	11	9	7	4	2	-	6	19	8	9	742
Texas	20	18	25	18	10	2	-	-	-	-	-	7	4,714
Celery													
California	10	5	7	6	7	10	4	3	3	7	19	19	13,148
Florida	14	17	20	21	19	5	-	-	-	-	-	4	9,034
Michigan	-	-	-	-	-	2	25	30	24	15	3	1	417
New York	-	-	-	-	-	-	1	21	32	32	12	2	798
Utah	-	-		-	-	-	-	16	57	27	-	-	670
Lettuce and romaine													
Arizona	7	7	23	26	1	-	-	-	-	-	13	23	18,256

Continued

Table 7.- Average monthly rail shipments, shown as percentage of total rail shipments for calendar year, fresh fruits and vegetables, 1947-49 - Continued

Commodity and producing area	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average 1947-49
	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Carloads
California													
Northern	-	-	-	8	18	12	14	12	15	12	8	1	38,118
Southern	32	33	21	1	1	-	-	-	-	-	-	12	14,516
Total	9	9	6	6	13	9	10	9	10	9	6	4	52,634
Idaho	-	-	-	-	-	13	2	-	6	61	18	-	1,484
Onions, dry													
California	1	1	1	1	17	40	14	7	8	7	2	1	4,047
Colorado	14	9	6	-	-	-	-	7	23	17	14	10	3,979
Idaho	11	5	5	1	-	-	1	11	23	18	15	10	3,029
Michigan	17	14	14	2	-	-	1	3	11	12	12	14	2,894
Minnesota	13	7	4	-	-	-	-	3	28	21	17	7	1,985
New York	14	14	14	6	3	1	1	6	9	10	11	11	3,097
Oregon	10	7	8	2	1	-	-	9	23	14	15	11	2,662
Texas	-	-	-	39	46	14	1	-	-	-	-	-	6,751
Tomatoes													
California	-	-	-	-	1	5	11	7	24	43	9	-	6,659
Florida	10	7	14	22	24	1	-	-	-	-	3	19	4,605
Pennsylvania	-	-	-	-	-	-	-	37	61	2	-	-	584
Tennessee	-	-	-	-	-	21	78	1	-	-	-	-	548
Texas	-	-	-	1	34	48	6	-	-	-	9	2	10,173
Potatoes, not sweet													
Official zone States													
Maine	12	14	22	18	6	-	-	-	1	6	10	11	60,124
Michigan	9	8	17	25	9	1	-	-	4	11	10	6	2,833
New Jersey	-	-	-/	-	-	-	7	34	41	15	2	1	7,977
New York	6	7	4/	2	-	-	4	19	25	19	8	6	15,771
Virginia	-	-	-	-	-	43	55	2	-	-	-	-	5,835

Continued

Table 7.- Average monthly rail shipments, shown as percentage of total rail shipments for calendar year, fresh fruits and vegetables, 1947-49 - Continued

Commodity and producing area	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average 1947-49
	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Carloads
Southern zone States:													
Alabama	-	-	-	6	80	13	1	-	-	-	-	-	2,918
Florida	3	12	22	35	28	-	-	-	-	-	-	-	5,190
N. Carolina	-	-	-	-	4	85	11	-	-	-	-	-	4,850
S. Carolina	-	-	-	-	45	55	-	-	-	-	-	-	1,211
Western truckline zone States													
Minnesota	10	14	25	10	2	-	-	1	8	14	8	8	12,217
Nebraska	16	16	14	7	-	-	4	12	3	8	10	10	8,234
N. Dakota	9	7	17	9	3	1	-	1	17	17	10	9	17,472
Wisconsin	6	5	6	3	2	-	-	8	42	20	4	4	5,032
Southwestern zone States													
Texas	-	-	1	49	4	4	21	15	6	-	-	-	2,483
Mountain Pacific zone States													
California	1	1	1	5	28	40	11	4	3	2	2	2	43,786
Colorado	10	9	9	4	-	-	3	18	16	15	8	8	15,646
Idaho	12	10	13	9	3	-	3	5	10	12	12	11	36,987
Oregon	10	11	9	4	1	-	9	16	9	11	11	9	8,277
Washington	3	3	2	1	-	-	19	33	20	12	4	3	9,879

1/ Includes casaba, honeyball, honeydew, Persian, and mixed melons.

PMA carlot shipment data.

Table 8.- Gross rail revenues from specified agricultural commodities used as weights in combined index of rail freight rates

Rail freight classes: Class number	Commodity	Revenues 1947-49 average 1/	Weight
		1,000 dollars	Percent
	Wheat Index		
1	Wheat	221,438	
3	Corn	91,445	
5	Sorghum grains	15,900	
7	Oats	25,439	
9	Barley and rye	32,356	
11	Rice	9,878	
13	Grain, NOS	1,593	
15	Flour, wheat	65,678	
17	Meal, corn	962	
19	Flour, edible, NOS	9,508	
21	Cereal food preparations, NOS	9,363	
23	Mill products, NOS	37,494	
39	Cottonseed oil cake and meal	6,770	
43	Soybeans	19,320	
45	Soybean oil cake and meal	15,224	
47	Vegetable and nut oil cake and meal	3,712	
103	Malt, NOS	6,781	
	Total	572,861	47.3
	Cotton Index		
33	Cotton, in bales	43,241	
35	Cotton linters, noils, regins	7,168	
37	Cottonseed	2,054	
41	Cottonseed hulls and bran	339	
	Total	52,802	4.4
	Fresh Fruits and Vegetables Index		
49	Apples, fresh	21,941	
51	Bananas, fresh	25,234	
53	Berries, fresh	190	
57	Grapes, fresh	17,181	
59	Lemons, limes and citrus, NOS, fresh	9,765	
61	Oranges and Grapefruit, fresh	65,963	
63	Peaches, fresh	5,857	
65	Pears, fresh	8,169	
69	Fruits, fresh, NOS	6,732	
55	Cantaloups and melons	13,023	

Continued

Table 8.- Gross rail revenues from specified agricultural commodities used as weights in combined index of rail freight rates - Continued

Rail freight classes: Class number	Commodity	Revenues 1947-49 average 1/: 1,000 dollars	Weight: Percent
	Fresh Fruits and Vegetables Index (contd.)		
67	Watermelons	7,674	
77	Cabbage	6,989	
79	Celery	10,341	
81	Lettuce	35,326	
83	Onions, dry	8,999	
85	Potatoes, other than sweet	88,007	
87	Tomatoes	12,589	
89	Vegetables, fresh, NOS	34,294	
	Total	378,274	31.2
	Livestock Index		
203	Cattle and calves, single-deck	50,290	
205	Calves, double-deck	744	
207	Sheep and goats, single-deck	1,266	
209	Sheep and goats, double-deck	8,205	
211	Swine, single-deck	3,573	
213	Swine, double-deck	17,663	
	Total	81,741	6.8
	Meats Index		
215	Meats, fresh, NOS	89,426	
217	Meats, cooked, cured, dried, and smoked	17,702	
219	Packinghouse products	17,385	
	Total	124,513	10.3
	Grand total	1,210,191	100.0

1/ Received by class I rail carriers, United States.